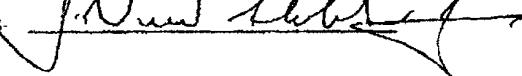


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**PATENT APPLICATION  
DOCKET NO: 10007751-1**

**PRINTER HELP APPARATUS AND METHOD**

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## **PRINTER HELP APPARATUS AND METHOD**

### **FIELD OF THE INVENTION**

This invention relates to a printer help apparatus and method. In particular, the invention relates to a printer help apparatus and method wherein a supplemental audio/video control device is conformed to display audio/visual information concerning the functioning of the printer connected to the printer at the printer location.

### **BACKGROUND OF THE INVENTION**

A typical business office includes a computer system of networked computers and printers. In general, there are more computers than printers so that the printers are remote from most of the computers to which they are networked. These "distributed" printers are very capable business machines. They are machines, however, and they are not perfect. That is to say, the printers are subject to functioning errors.

When a functioning problem does occur with a printer, a variety of prior art solutions are available to attempt to assist a user in correcting the printer problem. The most common prior art solution is a written printer manual which attempts to describe the most common forms of printer functioning problems in a way that the lay person can read and understand. Nowadays, these written printer manuals are also found in electronic form for use on a user's computer. Once again these electronic forms of manuals are text based and, in the best case, have limited pictures. Similarly, the Internet is a source of help to users facing printer problems. This assistance is directed to the user at the computer desktop, far removed typically from the malfunctioning printer, and is primarily text based information. A further difficulty with this type of printer help is the fact that the applicability of the information sent is uncertain since it depends, typically, on uncertain end-user printer equipment details. Frequently, for example, the user has no idea what make or model of printer he or she is dealing with.

Another prior art attempt at solving printer problems has resulted in "control panels" on the printer itself. These control panels attempt to provide useful information in dealing with printer functioning issues. Unfortunately the control panels are rudimentary at best and are extremely limited in capabilities.

5 Repair service providers offer the best printer functioning capability but at the highest cost. However, even printer repair service providers are not perfect. In fact, service provider equipment and training vary so widely that service providers do not see particular printers enough to become experts. Thus, repair service providers, while seemingly most likely to succeed, often have poor repair  
10 records since the repair service cannot train enough service providers to ensure that they gain the experience necessary to deal with the wide variety of printers in the marketplace.

Thus, there is a need in the art for providing an apparatus and method for helping a user trouble shoot printer functioning issues that avoids the use of  
15 outdated troubleshooting information in manuals or the limited display capabilities of current printers or undertrained technicians.

### SUMMARY OF THE INVENTION

Accordingly, the printer help apparatus and method of the present invention includes, a printer and a supplemental audio/video device, conformed to  
20 display audio/visual information concerning the functioning of the printer, the supplemental audio/video device being connected to the printer. In another aspect of the invention the invention includes, in a computer system of networked computers and printers, a help apparatus including at least one computer. A network is connected to the at least one computer and a printer is  
25 connected to the network and thereby to the at least one computer. A supplemental audio/video control device conformed to display audio/visual information concerning the functioning of the printer is connected to the printer at the printer site.

In other aspects of the invention, the supplemental audio/video device is  
30 conformed to display prerecorded videos, to receive dynamic content for display and to conduct video conferences. In a further aspect of the invention, more

than one computer is connected to the network. In other aspects of the invention, the network includes an intranet network and the Internet network. In another aspect of the invention, more than one printer is connected to the network.

- 5        In another preferred embodiment of the invention, in a computer system of a plurality of networked computers and at least one distributed printer, a supplemental help apparatus for assisting in the operation of the at least one printer includes a plurality of computers connected to an intranet network. At least one distributed printer is connected to the intranet network and a
- 10      supplemental audio/visual control device for displaying audio/visual information concerning the functioning of the distributed printer is connected to the printer at the printer location.

In another preferred embodiment of the invention, a method of controlling the functioning of at least one distributed printer is provided by connecting the at least one distributed printer to a supplemental audio/visual control device for displaying audio/visual information concerning the functioning of the distributed printer at the printer location. Next, printer functioning information is received by the supplemental audio/visual control device from the at least one distributed printer and that functioning information is provided to a user at the distributed printer by means of the supplemental audio/visual control device with the user given a selection of audio/visual information from which to choose in responding to the functioning information.

- In still another preferred embodiment of the invention, a computer program product for providing user help in the functioning of a distributed printer includes instructions for a supplemental audio/visual control, connected to the distributed printer at the distributed printer location, such that the supplemental audio/visual control is conformed to display audio/visual information concerning the functioning of the distributed printer. In another aspect of the invention, the computer program product includes instructions for conforming the supplemental audio/visual control such that the supplemental audio/visual control is conformed to display prerecorded videos, to receive dynamic content for display and to conduct video conferences.

## DESCRIPTION OF THE DRAWINGS

Other objects, features, and advantages of the present invention will become more fully apparent from the following detailed description of the preferred embodiment, the appended claims and the accompanying drawings in which:

FIGURE 1 is a schematic diagram of the printer help apparatus of the present invention;

FIGURE 2 is an illustration of the help screen of the present invention offering a written explanation of a printer functioning issue;

FIGURE 3 is an illustration of the help screen of the present invention offering a video explanation of a printer functioning issue; and

FIGURE 4 is an illustration of the help screen of the present invention offering to initiate a video conference with a certified printer technician to assist with a printer functioning issue.

## 15 DETAILED DESCRIPTION OF THE INVENTION

The preferred embodiment of the present invention is illustrated by way of example in Figures 1-4. With specific reference to Figure 1, the printer help apparatus 10 of the present invention includes a network 12, computers 14 and printers 16. Supplemental audio/video control 18 is connected to printers 16 at the physical location of printers 16. Supplemental audio/video control 18 is conformed to display audio/visual information 20 as illustrated by way of example in Figures 2-4. Supplemental audio/video control 18 is any supplemental control panel now known or hereafter developed. For example, in a preferred embodiment, Hewlett-Packard's Journada brand handheld pocket PC functions as supplemental audio/video control 18. Supplemental audio/visual control 18 is connected by connection 22 to printer 16. Connection 22 may be any connection now known such as a wireless connection in the nature of the Blue Tooth wireless system, through a USB connection, through a parallel (IEE 1294) connection or through any other connection hereafter developed. Whatever supplemental audio/visual control 18 is selected, it must be fully audio/visual enabled. That is to say, it must provide audio as well as video feedback to users

desiring printer help through the printer help apparatus 10 of the present invention. More particularly, supplemental audio/visual control 18 requires outputs in the form of a video screen(s), as discussed hereafter, and speakers, as are known in the art. Further inputs are required such as microphones,

- 5 keyboards or a touch screen, as are also all known in the art.

In a preferred embodiment, supplemental audio/visual control 18 is conformed to display prerecorded videos. Printers often come these days with information about printer functioning on a CD. The CDs often include video helps. In this embodiment, again, supplemental audio/visual control 18 is  
10 designed to display, that is play, these prerecorded "videos" for a user's information and assistance. Certainly any other type of video is contemplated within the scope of the invention including tapes and downloaded "videos" from the Internet or intranet, as will be discussed more fully hereafter. In general, information may be preloaded or dynamically updated on the internal printer disk  
15 drive. Further, the updates can be asynchronous to user queries in order to reduce wait times.

In another preferred embodiment of the invention, supplemental audio/visual control 18 is conformed to receive dynamic content and display it. In this embodiment, a user initiates a query to a printer Tech provider in the  
20 nature of an e-mail, for example. The dynamic response is received at supplemental audio/visual control 18 which, in accordance with the present invention, is in direct proximity with the printer 16 with which the user is having a functioning problem. One important advantage of the present invention is the increased capability of interaction that is provided by means of supplemental  
25 audio/visual control 18 since it is in fact located directly next to the subject printer 16 with a problem. As a result, the dynamic responses, that is responses that are up-to-date, current and timely, as in an instant message response, help short circuit antiquated printed manuals and misguided information concerning misidentified remote printers 16. It should be noted that the printer 16 already  
30 has dynamic information generating capability. The supplemental audio/visual control 18 is, however, configured to carry on a "machine to machine" dialog using XML, PML, JVM, SMTP or other suitable protocol.

In another aspect of the invention, supplemental audio/visual control 18 is conformed to conduct video conferences, as are known in the art. Here, the highest level of Tech support is provided a user by means of a direct audio/visual connection with support personnel. In this embodiment, video device 24 is connected to supplemental audio/visual control 18 for the transmission of video images of the user to the Tech personnel and vice versa. Video device 24 is any video device now known or hereafter developed for use in such a manner.

In a further preferred embodiment, supplemental audio/visual control 18 is conformed to display prerecorded videos, to receive dynamic content for display and to conduct video conferences, all as described above.

As illustrated in Figure 1, in a further aspect of the invention more than one computer 14 is connected to network 12. Computer 14 operates in the typical office environment as the data processor for creating print jobs for printer 16. Multiple computers 14 may be connected to a single printer 16 or multiple computers 14 may be connected to multiple printer 16. In a further aspect of the invention, network 12 may be any network now known or hereafter developed including a common intranet network used in businesses as well as the Internet network. Any network 12 now known or hereafter developed, including wireless, is well within the scope of the invention.

In a situation where, as described, computers 14 are connected by means a network 12 to printers 16, it is most common that printers 16 are remote from computers 14 and are, in fact, distributed throughout the business as best suits the business needs. These "distributed" printers 16 result in a user of computer 14 being separated by some distance from printer 16. Thus, when a printer functioning issue arises, the user typically finds himself or herself in front of the printer with no more help in assessing the functioning issue than an outdated printed manual or a cryptic tiny LCD screen on the printer itself. Printer help apparatus 10 provides a cost-effective efficient set of solution options, including prerecorded video instructions, dynamic technical instructions, and even live face-to-face interface with a human technician skilled in the art of the exact printer 16 in question.

- In its simplest form, the present invention includes printer 16 and audio/visual control 18 connected to the printer 16 with preloaded content on the audio/visual control 18 and/or printer 16. Again, content includes, but is not limited to, pre-recorded videos, dynamic content (push model), dynamic content 5 on demand (pull model) and video conferencing. In this form, the invention is suitable for use in walk up printing (copying) environments to guide printer or payment usage/sales. Further, supplemental audio/visual device 18 may be logically connected to the printer 16 through a network card and network 12, for example, while remaining physically co-located.
- 10 Referring now to Figures 2-4, Figure 2 illustrates the help screen 26 of supplemental audio/visual control 18. In Figure 2, audio/visual information 20 is displayed on help screen 26 of supplemental audio/visual control 18. Obviously, any information may be so displayed. In Figure 2, the display begins with the question "Tray two is opened. Have you inserted new paper?" Thereafter 15 additional information may be provided the user. In Figure 2, the "if yes" arrow 28 leads a user to the next help screen 26 wherein additional information is provided a user. In this case, the question asked is "Would you like an explanation of what paper works in this printer and how to maximize print quality?" Multiple additional if yes arrows 28 are envisioned within the scope of 20 the invention.

Referring now to Figure 3, audio/visual information 20 is presented on help screen 26 in another aspect of the invention wherein the user can simply activate a "yes" command 30 or a "no" command 32 in response to a query such as "The printer has detected a paper jam. Would you like to see a video on how to 25 correct this jam?" In a further aspect of the invention, referring now to Figure 4, supplemental audio/visual control 18 prompts a user by way of help screen 26 with audio/visual information queries to initiate a telephone video conference by way of video device 24. For example, help screen 26, in Figure 4, states "Would 30 you like to initiate a video conference with a Hewlett-Packard certified printer technician to assist with the problem?"

In operation, a user of printer help apparatus 10 finds its most common application in a computer system of networked computers 14 and at least one

distributed printer 16. Computers 14 and printer(s) 16 are connected by network 12. The supplemental audio/visual control 18 is connected directly to printer 16. By directly, it is meant at the physical location of printer(s) 16 is such that the user facing printer functioning problems will be positioned directly in front of 5 supplemental audio/visual control 18 where it is needed. In any instance where a printer malfunctions, the functioning problem is displayed on help screen 26 in the form of audio/visual information 20. Thereafter, a user simply selects the audio/visual information 20 that is appropriate for resolving the printer functioning issue at hand. Such printer functioning issues may be resolved by 10 resorting to an animated video either prerecorded, newly downloaded or real-time, or to real-time instant messaging between the user and a printer technician, or through direct audio visual video conferencing with a qualified technician.

The description of the present embodiments of the invention have been presented for purposes of illustration but are not intended to be exhaustive or to

15 limit the invention to the form disclosed. Many modifications and variations will be apparent to those of ordinary skill in the art. As such, while the present invention has been disclosed in connection with the preferred embodiment thereof, it should be understood that there may be other embodiments which fall within the spirit and scope of the invention as defined by the following claims.